

04/22/02

1646

Attorney's Pocket: 01834CIP/HG

**IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE**

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Applicant(s): Takeshi IMANISHI et al.

Serial No. : 10/054,300

Filed : January 22, 2002

For : NOVEL BICYCLONUCLEOSIDE
ANALOGUES

Art Unit : 1646

Examiner :

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INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
Washington, D.C. 20231

S I R :

The present application is a CIP of International
Application No. PCT/JP00/04902.

Submitted concomitantly herewith are the following:

- (1) Forms PTO/SB/08A and PTO/SB/08B;
- (2) A copy of the International Search Report for
PCT/JP00/04902;
- (3) Copies of the publications cited in said International
Search Report (WO 98/39352 and Tett. Letters, 40, 6465-
6468 (1999));
- (4) Copies of other publications which are cited on said
Forms PTO/SB/08A and PTO/SB/08B; and
- (5) A copy of copending related application Serial No.
09/925,673, filed August 9, 2001.


WO 98/39352, which is listed in the International Search
Report for PCT/JP00/04902 is also discussed on page 2 of the
present specification.

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The enclosed copy of the International Search Report is in English.

It is respectfully requested that the attached publications be considered and made "of record".

Respectfully submitted,


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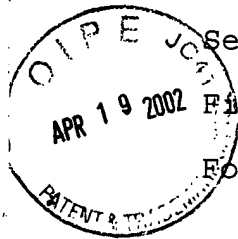
- Enclosures: (1) Forms PTO/SB/08A and PTO/SB/08B
- (2) Publications identified on said Forms PTO/SB/08A and PTO/SB/08B
 - (3) A copy of International Search Report for PCT/JP00/04902, dated October 10, 2000
 - (4) A copy of copending related application Serial No. 09/925,673, filed August 9, 2001

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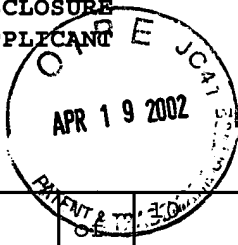
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PTO/SB/08A (08-00)

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Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	10/054,300	
		Filing Date	January 22, 2002	
		First Named Inventor	Takeshi IMANISHI	
		Group Art Unit	1646	
		Examiner Name		
Sheet	1	Attorney Docket Number		01834CIP/HG



U.S. PATENT DOCUMENTS

Exam. Inits*	Cite No ¹	Document Number	Kind Code ²	Name of Patentee or Applicant	Publication Date MM-DD-YYYY	Relevant Portion
		09/925,673		KANEKO et al.		
		3,687,808		MERIGAN, Jr. et al.	08-29-1972	
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		4,806,463		GOODCHILD et al.	02-21-1989	
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		WIPO	WO 94/08003		MONIA et al.	04-14-1994		
		WIPO	WO 96/31557		JACOBSEN	10-10-1996		
		WIPO	WO 98/39352		IMANISHI	09-11-1998		

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		<p> GRIFFITHS and NICKOLOFF, "Keratinocyte Intercellular Adhesion Molecule-1 (ICAM-1) Expression Precedes Dermal T Lymphocytic Infiltration in Allergic Contact Dermatitis (<i>Rhus dermatitis</i>)", <u>Am. J. Pathology</u>, 1989, 135, 1045-1053. </p> <p> THUONG and HELENE, "Sequence-Specific Recognition and Modification of Double-Helical DNA by Oligonucleotides", <u>Angew. Chem. Int. Ed. Engl.</u>, 1993, 32, 666-690. </p> <p> ENGLISH and GAUSS, "Chemically Modified Oligonucleotides as Probes and Inhibitors", <u>Angewandte Chemie</u>, International Edition, 1991, 30, 613-722. </p> <p> MANOHARAN et al., "Chemical Modifications to Improve Uptake and Bioavailability of Antisense Oligonucleotides", <u>Ann. N.Y. Acad. Sci.</u>, 1992, 660, 306-309. </p> <p> STETLER-STEVENSON et al., "Tumor Cell Interactions with the Extracellular Matrix During Invasion and Metastasis", <u>Annu. Rev. Cell Biol.</u>, 1993, 9, 541-573. </p> <p> COOK, "Medicinal chemistry of antisense oligonucleotides- future opportunities", <u>Anti-Cancer Drug Design</u>, 1991, 6, 585-607. </p> <p> MORASSUTTI et al., "Reduction of <i>mdr1</i> Gene Amplification in Human Multidrug-Resistant LoVo DX Cell Line Is Promoted by Triple Helix-Forming Oligonucleotides", <u>Antisense & Nucleic Acid Drug Development</u>, 1999, 9, 261-270. </p> <p> SANGHVI, "Heterocyclic Base Modifications in Nucleic Acids and their Applications in Antisense Oligonucleotides", <u>Antisense Research and Applications</u>, Ed. S.T. Crooke and B. Lebleu, CRC Press, 1993, 273-288 (Chapter 15). </p> <p> SHIOHARA et al., "Fixed Drug Eruption", <u>Arch. Dermatol.</u>, 1989, 125, 1371-1412. </p>		
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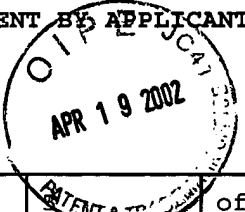
Examiner Initials ¹	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article, title of item, date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
		<p>EBBINGHAUS et al., "Inhibition of Transcription Elongation in the HER-2/neu Coding Sequence by Triplex-Directed Covalent Modification of the Template Strand", <u>Biochemistry</u>, 1999, 38, 619-628.</p> <p>CATAPANO et al., "Inhibition of Gene Expression and Cell Proliferation by Triple Helix-Forming Oligonucleotides Directed to the <i>c-myc</i> Gene", <u>Biochemistry</u>, 2000, 39, 5126-5138.</p> <p>MISHRA et al., "Improved leishmanicidal effect of phosphorotioate antisense oligonucleotides by LDL-mediated delivery", <u>Biochimica et Biophysica Acta</u>, 1995, 1264, 229-237.</p> <p>SVINARCHUK et al., "Inhibition of HIV proliferation in MT-4 cells by antisense oligonucleotide conjugated to lipophilic groups", <u>Biochimie</u>, 1993, 75, 49-54.</p> <p>MANOHARAN et al., "Introduction of a lipophilic thioether tether in the minor groove of nucleic acids for antisense applications", <u>Bioorganic & Medicinal Chemistry Letters</u>, 1993, 3, 2765-2770.</p> <p>MANOHARAN et al., "Cholic Acid-Oligonucleotide Conjugates for Antisense Applications", <u>Bioorganic & Medicinal Chemistry Letters</u>, 1994, 4, 1053-1060.</p> <p>YU et al., "Specific Inhibition of PCR by Non-Extendable Oligonucleotides Using a 5' to 3' Exonuclease-Deficient DNA Polymerase", <u>Biotechniques</u>, 1997, 23, 714-720.</p> <p>LISBY et al., "Intercellular adhesion molecule-I (ICAM-I) expression correlated to inflammation", <u>Brit. J. Dermatol.</u>, 1989, 120, 479-484.</p> <p>TAM and FRASER-REID, "A synthetic route to 4-C-methyl-xylo-furanose", <u>Can. J. Chem.</u>, 1979, 57, 2818-2822.</p>	
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		<p>RESNICOFF et al., "Inhibition of rat C6 glioblastoma tumor growth by expression of insulin-like growth factor I receptor antisense mRNA", <u>Cancer Immunol. Immunother.</u>, 1996, 42, 64-68.</p> <p>MAHER III, "Prospects for the Therapeutic Use of Antigene Oligonucleotides", <u>Cancer Investigation</u>, 1996, 14(1), 66-82.</p> <p>RESNICOFF et al., "Rat Glioblastoma Cells Expressing an Antisense RNA to the Insulin-like Growth Factor-1 (IGF-1) Receptor are Nontumorigenic and Induce Regression of Wild-Type Tumors", <u>Cancer Research</u>, 1994, 54, 2218-2222.</p> <p>PASS et al., "Inhibition of Hamster Mesothelioma Tumorigenesis by an Antisense Expression Plasmid to the Insulin-like Growth Factor-1 Receptor", <u>Cancer Research</u>, 1996, 56, 4044-4048.</p> <p>HUSA and MUSCHEL, "Inhibition of Matrix Metalloproteinase 9 Expression by a Ribozyme Blocks Metastasis in a Rat Sarcoma Model System", <u>Cancer Research</u>, 1996, 56, 5279-5284.</p> <p>BRIMACOMBE and CHING, "Nucleophilic Displacement Reactions in Carbohydrates", <u>Carbohydrate Research</u>, 1968, 8, 82-88.</p> <p>BOGEMEYER et al., "Borrelia Burgdorferi Upregulates the Adhesion Molecules E-selectin, P-selectin, ICAM-1 and VCAM-1 on Mouse Endothelioma Cells in vitro", <u>Cell Adhesion and Communication</u>, 1994, 2, 145-157.</p> <p>KERR et al., "TGF-β1 Inhibition of Transin/Stromelysin Gene Expression is Mediated through a Fos Binding Sequence", <u>Cell</u>, 1990, 61, 267-278.</p> <p>SINGH et al., "LNA (locked nucleic acids): synthesis and high-affinity nucleic acid recognition", <u>Chem. Commun.</u>, 1998, 4, 455-456.</p>	
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		BIRKENDAL-HANSEN, "Proteolytic remodeling of extracellular matrix", <u>Current Opinion in Cell Biology</u> , 1995, 7, 728-735. LEROITH et al., "Molecular and Cellular Aspects of the Insulin-Like Growth Factor I Receptor", <u>Endocrine Reviews</u> , 1995, 16, 143-163. KABANOV et al., "A new class of antivirals: antisense oligonucleotides combined with a hydrophobic substituent effectively inhibit influenza virus reproduction and synthesis of virus-specific proteins in MDCK cells", <u>FEBS Lett.</u> , 1990, 259, 327-330. PIERRE MARTIN, "Ein Zugang zu 2'-O-Alkylribonucleosiden und Eigenschaften deren Oligonucleotide", <u>Helv. Chim. Acta</u> , 1995, 78, 486-504. DELISSER et al., "Molecular and functional aspects of PECAM-1/CD31", <u>Immunology Today</u> , 1994, 15, 490-495. HURTENBACH et al., "Prednisolone Reduces Experimental Arthritis, and Inflammatory Tissue Destruction in Scid Mice Infected with <i>Borrelia burgdorferi</i> ", <u>Int. J. Immunopharmac.</u> , 1996, 18, 281-288. HIMELSTEIN et al., "Metalloproteinases in Tumor Progression: The Contribution of MMP-9", <u>Invasion Metastasis</u> , 1994, 14, 246-258. HO et al., "Treatment of severe lichen planus with cyclosporine", <u>J. Am. Acad. Dermatol.</u> , 1990, 22, 64-68. GUM et al., "Stimulation of 92-kDa Gelatinase B Promoter Activity by ras Is Mitogen-activated Protein Kinase Kinase 1-independent and Requires Multiple Transcription Factor Binding Sites Including Closely Spaced PEA3/ets and AP-1 Sequences", <u>J. Biol. Chem.</u> , 1996, 271, 10672-10680.					
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		<p>LITWIN et al., "Novel Cytokine-independent Induction of Endothelial Adhesion Molecules Regulated by Platelet/Endothelial Cell Adhesion Molecule (CD31)", <u>J. Cell Biol.</u>, 1997, 139, 219-228.</p> <p>NEWMAN, "The Biology of PECAM-1", <u>J. Clin. Invest.</u>, 1997, 99, 3-8.</p> <p>HAKUGAWA et al., "The Inhibitory Effect of Anti-Adhesion Molecule Antibodies on Eosinophil Infiltration in Cutaneous Late Phase Response in Balb/c Mice Sensitized with Ovalbumin (OVA)", <u>J. Dermatol.</u>, 1997, 24, 73-79.</p> <p>OUWERKERK-MAHADEVAN et al., "Isoenzyme-Selective Inhibition of Glutathione Conjugation in Vivo: Selective Inhibition of the Conjugation of S-2-Bromoisovalerylurea in the Rat", <u>J. Pharmacol. Exp. Therapeut.</u>, 1996, 276, 923-928.</p> <p>WAHLESTEDT et al., "Antisense oligodeoxynucleotides to NMDA-R1 receptor channel protect cortical neurons from excitotoxicity and reduce focalischaemic infarctions", <u>Nature</u>, 1993, 363, 260-263.</p> <p>DEMERS et al., "Enhanced PCR amplification of VNTR locus D1S80 using peptide nucleic acid (PNA)", <u>Nucleic Acids Research</u>, 1995, 23, 3050-3055.</p> <p>CHEN et al., "Synthesis of oligodeoxyribonucleotide N3'-P5' phosphoramidates", <u>Nucleic Acids Research</u>, 1995, 23, 2661-2668.</p> <p>SHEA et al., "Synthesis, hybridization properties and antiviral activity of lipid-oligodeoxynucleotide conjugates", <u>Nucleic Acids Research</u>, 1990, 18, 3777-3783.</p> <p>OBERHAUSER and WAGNER, "Effective incorporation of 2'-O-methyl-oligoribonucleotides into liposomes and enhanced cell association through modification with thiocholesterol", <u>Nucleic Acids Research</u>, 1992, 20, 533-538.</p>	
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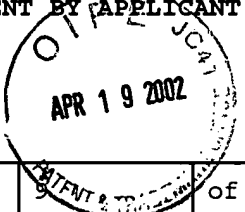
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		<p>SURZHYKOV and KRAYEVSKY, "Novel 4'-Branched Nucleosides", <u>Nucleosides & Nucleotides</u>, 1994, 13, 2283-2305.</p> <p>MANOHARAN et al., "Oligonucleotide conjugates: alteration of the pharmacokinetic properties of antisense agents", <u>Nucleosides & Nucleotides</u>, 1995, 14, 969-973.</p> <p>REGESI et al., "Vascular adhesion molecules in oral lichen planus", <u>Oral Surg. Oral Med. Oral Pathol.</u>, 1996, 81, 682-690.</p> <p>HEGEMANN and MAHRLE, "Biochemical Pharmacology of Protein Kinase C and its Relevance for Dermatology", <i>Pharmacology of the Skin</i>, Ed. H. Mukhtar, CRC Press, Boca Raton, FL., 1992, 357-368.</p> <p>BERNHARD et al., "Direct evidence linking expression of matrix metalloproteinase 9 (92-kDa gelatinase/collagenase) to the metastatic phenotype in transformed rat embryo cells", <u>Proc. Natl. Acad. Sci.</u>, 1994, 91, 4293-4297.</p> <p>PORRECA et al., "A comparison of the potential role of the tetrodotoxin-insensitive sodium channels, PN3/SNS and NaN/SNS2, in rat models of chronic pain", <u>Proc. Natl. Acad. Sci.</u>, 1999, 96, 7640-7644.</p> <p>DEAN and MCKAY, "Inhibition of protein kinase C-α expression in mice after systemic administration of phosphorothioate antisense oligodeoxynucleotides", <u>Proc. Natl. Acad. Sci.</u>, 1994, 91, 11762-11766.</p> <p>RININSLAND et al., "Suppression of insulin-like growth factor type I receptor by a triple-helix strategy inhibits IGF-I transcription and tumorigenic potential of rat C6 glioblastoma cells", <u>Proc. Natl. Acad. Sci.</u>, 1997, 94, 5854-5859.</p> <p>LETSINGER et al., "Cholesterol-conjugated oligonucleotides: Synthesis, properties, and activity as inhibitors of replication of human immunodeficiency virus in cell culture", <u>Proc. Natl. Acad. Sci.</u>, 1989, 86, 6553-6556.</p>	
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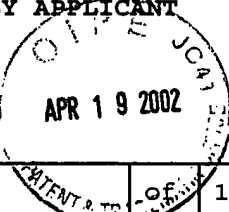
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Examiner Initials ¹	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article, title of item, date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
		GIOVANNANGELI et al., "Triple-helix formation by oligonucleotides containing the three bases thymine, cytosine, and guanine", <u>Proc. Natl. Acad. Sci.</u> , 1992, 89, 8631-8635. RUBIN and BASERGA, "Biology of Disease: Insulin-Like Growth Factor-I Receptor", <u>Laboratory Investigation</u> , 1995, 73, 311-331. MILNER, "Charles Darwin and Associates, Ghostbusters", <u>Scientific American</u> , 1996, 275, 72-77. BYNE, "The Biological Evidence Challenged", <u>Scientific American</u> , May 1994, 50-55. WAHLESTEDT et al., "Modulation of Anxiety and Neuropeptide Y-Y1 Receptors by Antisense Oligodeoxynucleotides", <u>Science</u> , 1993, 259, 528-531. KOSHKIN et al., "LNA (Locked Nucleic Acids): Synthesis of the Adenine, Cytosine, Guanine, 5-Methylcytosine, Thymine and Uracil Bicyclonucleoside Monomers, Oligomerisation, and Unprecedented Nucleic Acid Recognition", <u>Tetrahedron</u> , 1998, 54, 3607-3630. IYER et al., "A Novel Nucleoside Phosphoramidite Synthon Derived from 1R,2S-Ephedrine", <u>Tetrahedron Asymmetry</u> , 1995, 6, 1051-1054. MANOHARAN et al., "Lipidic Nucleic Acids", <u>Tetrahedron Letters</u> , 1995, 36, 3651-3654.	
Examiner Signature		Date Considered	

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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DATE MAILED: April 19, 2002

Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT 		Application Number	10/054,300	
		Filing Date	January 22, 2002	
		First Named Inventor	Takeshi IMANISHI	
		Group Art Unit	1646	
		Examiner Name		
Sheet	10	10	Attorney Docket Number	01834CIP/HG

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Examiner Initials ¹	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article, title of item, date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
		OBIKA et al., "Stability and structural features of the duplexes containing nucleoside analogues with a fixed N-type conformation, 2'-O,4'-C-methylenenucleosides", <u>Tetrahedron Letters</u> , 1998, 39, 5401-5404. OBIKA et al., "Synthesis of a conformationally locked AZT analogue, 3'-azido-3'-deoxy-2'-O,4'-C-methylene-5-methyluridine", <u>Tetrahedron Letters</u> , 1999, 40, 6465-6468. BERKOW et al., eds, <i>The Merck Manual of Diagnosis and Therapy</i> , 15th Ed., Rahway, NJ, 1987, 2263-2277. BERKOW et al., eds, <i>The Merck Manual of Diagnosis and Therapy</i> , 15th Ed., Rahway, NJ, 1987, 2283-2285. BERKOW et al., eds, <i>The Merck Manual of Diagnosis and Therapy</i> , 15th Ed., Rahway, NJ, 1987, 2286-2292. BERKOW et al., eds, <i>The Merck Manual of Diagnosis and Therapy</i> , 15th Ed., Rahway, NJ, 1987, 2301-2310. ALBERT and MORRIS, "Antisense knockouts: molecular scalpels for the dissection of signal transduction", <u>Trends in Pharmacological Sciences</u> , 1994, 15, 250-254.	
Examiner Signature		Date Considered	

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